

## IN THE CLAIMS

Please amend the claims as follows:

1. (Currently amended) An apparatus adapted for a wireless ~~communications~~ communication system supporting Large Area Synchronized-Code Division Multiple Access (LAS-CDMA) transmissions, the transmissions using LS codes for spread-spectrum modulation, the apparatus comprising:

means for determining a size of an interference free window (IFW);

means for ~~calculating~~ determining a plurality of subsets of LS codes, each subset comprising a number of LS codes as a function of the IFW;

means for assigning a first of the plurality of subsets to a first portion of the system;

and

means for assigning a second of the plurality of subsets to a second portion of the system.

2. (Currently amended) The apparatus of claim 1, wherein the means for ~~calculating further~~ determining the plurality of subsets of LS codes comprises:

means for determining a number of subsets for ~~application~~ assigning within the system;

means for determining the first subset of LS codes having null cross-correlation with respect to each other; and

means for determining the second subset of LS codes having null cross-correlation with respect to each other.

3. (Original) The apparatus of claim 1, further comprising:

means for identifying mobile stations within the first portion of the system with LS codes from the first of the plurality of subsets; and

means for identifying mobile stations within the second portion of the system with LS codes from the second of the plurality of subsets.

4. (Currently amended) The apparatus of claim 1, wherein a cross-correlation of the LS codes within the first ~~and second~~ of the plurality of subsets is null within the IFW, and

wherein the cross-correlation of the LS codes within the second of the plurality of subsets is null within the IFW.

5. (Currently amended) The apparatus of claim 1, ~~wherein the size of the IFW corresponds to an LS code length, and~~ wherein the means for calculating determining the plurality of subsets further comprises:

means for generating determining seed pairs given as:

(C1; S1); and

(C2; S2); and

means for generating determining a plurality of LS codes ~~of the LS code length~~ by application of a formula given as:

(C1 C2; S1 S2)

(C1 -C2; S1 -S2)

(C2 C1; S2 S1)

(C2 -C1; S2 -S1),

wherein a negative indicates a binary complement of an original element.

6. (Currently amended) The apparatus ~~as in~~ of claim 5, ~~further~~ wherein the number of subsets of LS codes is at least three.

7. (Currently amended) An apparatus adapted for use in a Large Area Synchronized-Code Division Multiple Access wireless communication system, the apparatus comprising:

means for transmitting a first communication within a first cell, the first communication identifying at least one mobile station within the first cell by a first LS code within a first subset of LS codes; and

means for transmitting a second communication within a second cell, the second communication identifying at least one mobile station within the second cell by a second LS code within a second subset of LS codes;

wherein a cross-correlation between any two LS codes within the first subset is null within an interference free window, and the cross-correlation between any two LS codes within the second subset is null within the interference free window.

8. (Currently amended) The apparatus of claim 7, wherein the first and second subsets of LS codes are part of a set of LS codes and are defined by the interference free window.

9. (Currently amended) The apparatus of claim 8, wherein ~~for~~ the set of LS codes comprises 128 LS codes, and the interference free window is equal to  $[-1, +1]$  and corresponds to 64 available LS codes for ~~forming each of the first and second~~ subsets.

10. (Currently amended) The apparatus of claim 9, wherein a correspondence between the interference free window and a number of available LS codes for each subset ~~forming subsets~~ is based on an arborescence structure.

11. (New) The apparatus of claim 1, wherein the first and second portions of the system correspond to first and second cells, respectively, in the system.

12. (New) The apparatus of claim 1, wherein the IFW is determined based on delay profiles of mobile stations in the first and second portions of the system.

13. (New) An apparatus for a Large Area Synchronized-Code Division Multiple Access wireless communication system, comprising:  
means for processing a transmission comprising first and second portions,  
the first portion comprising header information for the transmission to a first mobile station in a first cell in a cell neighborhood,  
the second portion comprising a first LS code corresponding to the first mobile station, the first LS code being part of a first set of LS codes, and  
wherein within the cell neighborhood, the first LS code is assigned only to the first cell.

14. (New) The apparatus of claim 13, the transmission further comprising:  
a third portion comprising the first LS code.

15. (New) The apparatus of claim 14, wherein the second portion has an associated first data symbol and the third portion has an associated second data symbol, the

second portion comprising the first LS code modulated by the first data symbol, and the third portion comprising the first LS code modulated by the second data symbol.

16. (New) The apparatus of claim 13, wherein a second set of LS codes is assigned to a second cell within the cell neighborhood.

17. (New) A method of communicating in a wireless communication system, comprising:  
receiving a first LS code set having a plurality of LS codes of a predetermined length, the plurality of LS codes in the first LS code set having null cross-correlation with respect to each other; and  
generating a transmission for a mobile station within a first cell based on a first LS code in the first LS code set.

18. (New) The method of claim 17, wherein the plurality of LS codes in the first LS code set have null cross-correlation with respect to each other for offsets within an interference free window.

19. (New) The method of claim 17, wherein the first LS code set comprises a subset of all available LS codes of the predetermined length.

20. (New) The method of claim 17, wherein the first LS code set is assigned only to the first cell in a cell neighborhood comprising the first cell and at least one other cell.

21. (New) An apparatus in a wireless communication system, comprising:  
means for receiving a first LS code set having a plurality of LS codes of a predetermined length, the plurality of LS codes in the first LS code set having null cross-correlation with respect to each other; and  
means for generating a transmission for a mobile station within a first cell based on a first LS code in the first LS code set.

22. (New) The apparatus of claim 21, wherein the plurality of LS codes in the first LS code set have null cross-correlation with respect to each other for offsets within an interference free window.

23. (New) The apparatus of claim 21, wherein the first LS code set comprises a subset of all available LS codes of the predetermined length.

24. (New) The apparatus of claim 21, wherein the first LS code set is assigned only to the first cell in a cell neighborhood comprising the first cell and at least one other cell.